

REMARKS

The Official Action dated April 7, 2005 has been received and its contents carefully noted. In view thereof, the specification and claims 1 and 8 have been amended and new claims 12-14 have been added in order to better define that which Applicants regard as the invention. Accordingly, claims 1-14 are presently pending in the instant application.

With reference to page 2 of the Official Action, the drawings have been objected to because they include reference numerals, not set forth in the specification. Specifically, reference numeral "S8" of Figure 4 and "S18" of Figure 5 are not set forth in the specification. As can be seen from the foregoing amendments, the specification has been amended at pages 11 and 13 to properly include such reference numerals. Accordingly, it is respectfully submitted that Applicant's several figures and specification are now in proper condition for allowance. No new matter has been added.

On page 3 of the Official Action, claims 8 and 9 have been rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. Specifically, the Examiner notes that claim 8 refers to "the method selected" rather than "the technique selected" and thus lacks proper antecedent basis. As can be seen from the foregoing amendments, claim 8 has been amended to properly refer to "the technique selected" as assumed by the Examiner. Accordingly, it is respectfully submitted that Applicant's claimed invention is now in proper condition for allowance.

Further on page 3 of the Office Action, claims 1, 8 and 10, have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,998,122 issued to Kanno in view of U.S. Patent No. 5,4368,431 issued to Ostromoukhov. This rejection is respectfully

traversed in that the combination proposed by the Examiner, neither discloses nor remotely suggests that which is presently set forth by Applicants' claimed invention.

With respect to independent claim 1, this claim recites a method of processing a halftone color image when the halftone color image is to be printed in monochrome, with the method including the steps of detecting a predetermined property of a line-like part of the halftone color image, and processing the line-like part of the halftone color image by a clustered dot dithering technique or a dispersed dot dithering technique according to the predetermined property of the line-like part. Similarly, independent claim 8 recites an apparatus for processing a halftone color image when the halftone color image is to be printed in monochrome, with the apparatus including a selecting means which selects a clustered dot dithering technique or a dispersed dot dithering technique according to a predetermined property of a line-like part of the halftone color image, and a processing means which processes the line-like part of the halftone color image by the technique selected by the selecting means. It is respectfully submitted that the combination proposed by the Examiner fails to disclose or suggest such features.

In rejecting Applicants' claimed invention, the Examiner has taken the position that the patent to Kanno discloses all those limitations set forth in accordance with the Applicant's claimed invention except that Kanno does not disclose expressly that the halftone image is a halftone color image; that the first dithering technique is a clustered dot dithering technique; and that the second dithering technique is a dispersed dot dithering technique. The Examiner goes on to rely on the teachings of Ostromoukhov to overcome such short comings.

In this regard, it is noted that in Kanno, an image is classified into two image portions. A portion of an image, such as a character and a line, is converted into binary images that have only two possible values for each pixel, and a portion of an image, such as a

photograph, is converted into halftone images (images represented by gradations). Further, the first threshold value is used for binary-encoding a character, a second threshold value is used for binary-encoding the photographic portion, and the second threshold value is based on a dithering matrix as noted from column 4, line 58 through column 5, line 2 of Kanno. More specifically, it is noted that the first threshold value is not the “first dithering technique” of the present invention as pointed out by the Examiner. Kanno discloses that the dithering matrix, as the second threshold value, may be arranged either in a dot dispersion fashion or in a dot centralized fashion as noted from column 11, lines 18-21. Therefore, it is respectfully submitted that one of ordinary skill in the art would not be motivated in the manner suggested by the Examiner to modify the device and method of Kanno to apply both the first threshold value as the dispersed dot dithering matrix and the second threshold value as the clustered dot dithering matrix in view of the teachings of Ostrommoukhov.

Furthermore, with respect to the method of detecting “lines”, Kanno detects the lines based on the images read out by a scan. On the other hand, the present invention is based on receiving data as a PDL (Page Description Language) data from a personal computer by using a printer drive. The PDL data sent from an ordinary printer driver of a computer to a printer is attached with the attribute data such as text, image (photographs etc), and line-drawing (line, rectangle, circular form). In accordance with the present invention, the attribute data is used to select a method of binary-coding as illustrated in Figure 5. Further, as noted from Applicant’s specification on page 6, line 25 to page 7, line 3 that:

“As data on the thickness and the density of the line-like part, attribute data on the thickness and the density of individual graphic forms and/or characters contained in color image data received from the image software may be employed as it is.”

Furthermore, in Kanno, the feature of a picture element of interest included in original image data read by a scanner is analyzed with reference to picture elements in the vicinity of the picture element of interest. Thus, the present invention is clearly different from that disclosed in Kanno, in that the attribute data of PDL is analyzed in the present invention. Accordingly, for at least the reasons discussed hereinabove, it is respectfully submitted that Applicant's claimed invention as set forth in claim 1, 8 and 10 clearly distinguishes over the combination proposed by the Examiner and is in proper condition for allowance.

With reference to page 8 of the Official Action, claims 2, 3, 5, 7, 9 and 11 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kanno in view of Ostromoukhov and further in view of U.S. Patent No. 5,153,576 issued to Harrington. This rejection is likewise respectfully traversed in that the patent to Harrington does nothing to overcome the aforementioned shortcomings associated with the combination of Kanno in view of Ostromoukhov.

While the patent to Harrington may disclose printing a halftone image in monochrome, this reference fails to overcome the shortcomings of the prior combination as noted above. Accordingly, it is respectfully submitted that claims 2, 3, 5, 7, 9 and 11 which are dependent upon one of independent claims 1 or 8 clearly distinguish over the combination proposed by the Examiner and are in proper condition for allowance.

With reference to page 11 of the Official Action, claim 4 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Kanno in view of Ostromoukhov and further in view of U.S. Patent No. 5,153,576 issued to Harrington and obvious engineering design choice. This rejection is likewise respectfully traversed in that, as noted above, the patent to Harrington does nothing to overcome the aforementioned shortcomings associated with the

combination of Kanno in view of Ostromoukhov and further, claim 4 is dependent on claim 1 and includes all of the limitations thereof.

Again, while the patent to Harrington may disclose printing a halftone image in monochrome, this reference fails to overcome the shortcomings of the prior combination as noted above. Furthermore, while 4 dots may be one value which the line-like part could be considered bold, it is respectfully submitted that claim 4, which is dependent upon independent claim 1, clearly distinguishes over the combination proposed by the Examiner and is in proper condition for allowance for the reasons discussed hereinabove with respect to claim 1.

With further reference to page 11 of the Official Action, claim 6 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Kanno in view of Ostromoukhov and further in view of U.S. Patent No. 5,153,576 issued to Harrington and further in view of U.S. Patent No. 6,034,782 issued to Hines. This rejection is likewise respectfully traversed in that the patent to Hines does nothing to overcome the aforementioned shortcomings associated with the combination of Kanno in view of Ostromoukhov and Harrington.

Again, while the patent to Hines may disclose using a printer driver to perform image data dithering, this reference fails to overcome the shortcomings of the prior combination as noted above. Therefore, it is respectfully submitted that claim 6, which is dependent upon independent claim 1, clearly distinguishes over the combination proposed by the Examiner and is in proper condition for allowance for the reasons discussed hereinabove with respect to claim 1.

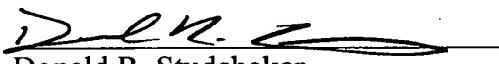
With respect to new dependent claims 12-15, each of these claims recite that the predetermined property includes both the thickness and the density of the line-like parts and detection of the line-like part of the image is carried out using attribute data received from the

software. Each of these claims are supported by Applicant's specification at page 6, line 25 to page 7, line 3 and are believed to distinguish over the prior art of record. Accordingly, it is respectfully submitted that claims 12-14 are likewise in proper condition for allowance.

Therefore, in view of the foregoing it is respectfully requested that the rejections of record be reconsidered and withdrawn by the Examiner, that claims 1-14 be allowed that the application be passed to issue.

Should the Examiner believe a conference would be of benefit in expediting the prosecution of the instant application, he is hereby invited to telephone counsel to arrange such a conference.

Respectfully submitted,



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